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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,813	12/21/2000	Hiroyuki Sasai	2000_1748A	6574

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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2633	11

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/740,813	Applicant(s) SASAI ET AL.	
	Examiner Shi K. Li	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. (M. Nakajima et al., "Subcarrier Homodyne Demultiplexing Scheme for SCM Optical Communication Systems", Microwave Photonics, 3-5 December 1996) in view of Darcie et al. (T. Darcie et al., "Wide-Band Lightwave Distribution System Using Subcarrier Multiplexing", Journal of Lightwave Technology, Vol. 7, No. 6, June 1989).

Nakajima et al. teaches in p. 165, second and third paragraphs SCM optical communication systems. Nakajima et al. cites Darcie et al. for details of the system and suggests a new demultiplexing scheme. Darcie et al. discloses in FIG. 1 and FIG. 2 a SCM distribution system comprising a transmitter at the headend, 10 Km of transmission fiber, an optical separation part (1x8 fiber star coupler) and a plurality of optical receivers (only one is shown is FIG. 1 and FIG. 2, however, it is understood that 8 receivers of the same structure are meant by FIG. 1). As illustrated in FIG. 1 and FIG. 2 of Darcie et al., the transmitter comprises modulators of different frequencies (2.6 GHz, 2.9 GHz, ... 4.7 GHz), a frequency division multiplexer (the circle with + or Σ), an intensity modulator (LD1). Nakajima et al. teaches in FIG. 1 the use of a balanced demodulation circuit to extract one of the data signals. FIG. 1 of Nakajima et al. includes an external modulator

driven by an electrical signal equal in frequency to one of the carriers f_1-f_N and a pair of photodiodes for converting the optical signal into electrical signal using square detection. Based on the modulation method used to modulate the data signal, Nakajima et al. discusses on page 167-168 various techniques to demodulate the data signal. One of ordinary skill in the art would have been motivated to combine the teaching of Nakajima et al. with the subcarrier optical communication system of Darcie et al. because the demodulation scheme of Nakajima et al. is free of intermodulation (see page 165, right col., 2nd paragraph) and because Nakajima et al. cites Darcie et al. for the general SCM transmission scheme. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the demodulation scheme of Nakajima et al. in the subcarrier optical communication system of Darcie et al. because the demodulation scheme of Nakajima et al. is free of intermodulation and because Nakajima et al. cites Darcie et al. for the general SCM transmission scheme.

Regarding claim 40, Darcie et al. teaches in p. 997 right col., last paragraph that the data for each node is 180 Mbit/s. That is the data is digital data.

Regarding claim 42, Nakajima et al. teaches in p. 168, left col., third paragraph to insert filter between v and R to prevent the microwave to leak into the load. Since microwave is of in the order of several GHz and the data is 180 Mbit/s, a low pass filter is appropriate.

3. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. and Darcie et al. as applied to claims 39-40 and 42 above, and further in view of Alexander ("Optical Communication Receiver Design" by S. Alexander, SPIE, 1997, p. 257).

Nakajima et al. and Darcie et al. have been discussed above in regard to claims 39-40 and 42. The difference between Nakajima et al. and Darcie et al. and the claimed invention is that teach means for extracting desired transmission data. Alexander teaches in FIG. 7.19 a transimpedance amplifier for extracting digital data from electrical signal i_{sig}. The transimpedance amplifier converts the weak signal detected by the photodiodes into digital signal and clock signal. One of ordinary skill in the art would have been motivated to combine the teaching of Alexander with the modified subcarrier optical communication system of Nakajima et al. and Darcie et al. because the transimpedance amplifier of Alexander has high sensitivity and converts the weak signal generated by photodiodes to standard digital level for interfacing with other digital circuits. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to an transimpedance amplifier, as taught by Alexander, in the modified subcarrier optical communication system of Nakajima et al. and Darcie et al. because the transimpedance amplifier of Alexander has high sensitivity and converts the weak signal generated by photodiodes to standard digital level for interfacing with other digital circuits.

Response to Arguments

4. Applicant's arguments with respect to claims 39-42 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl

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